AMENDMENTS TO THE CLAIMS

Please amend claims 1, 4-7, 9, 15 and 16 to read as follows

The listing of claims below will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An electrochemical cell comprising a cathode, an anode and an electrolyte, wherein,

said cathode comprises a mesoporous structure comprising mesoporous nickel comprising a periodic arrangement of substantially uniformly sized pores of cross-section in the order of 10^{-9} to 10^{-8} m; and

said anode comprises a mesoporous structure comprising a mesoporous material having a periodic arrangement of substantially uniformly sized pores of cross-section in the order of 10^{-9} to 10^{-8} m, said anode made of carbon, cadmium, iron, a palladium/nickel alloy, an iron/titanium alloy, palladium or a mixed metal hydride.

2. (Previously Presented) An electrochemical cell according to claim 1, wherein said mesoporous structure of said cathode comprises nickel and an oxide, hydroxide or oxy-hydroxide of nickel selected from NiO, $Ni(OH)_2$ and NiOOH, said nickel oxide, hydroxide or oxy-hydroxide forming a surface layer over said nickel and extending over the pore surfaces.

3. (Previously Presented) An electrochemical cell according to claim 1, wherein said mesoporous structure of said cathode is comprised of nickel or alloys of nickel.

4. (Currently Amended) An electrochemical cell according to claim 1, wherein said mesoporous structure of said cathode or of said anode or both has a pore diameter in the range of about 1 to about 10 nm.

5. (Currently Amended) An electrochemical cell according to claim 1, wherein said mesoporous structure of said cathode or of said anode or both has a pore number density from about $4x10^{11}$ to about $3x10^{13}$ pores per cm^2.

6. (Currently Amended) An electrochemical cell according to claim 1, wherein at least 85 % of the pores in said mesoporous structure of said cathode or of said anode or both have pore diameters within 30 % of the average pore diameter.

7. (Currently Amended) An electrochemical cell according to claim 1, wherein said mesoporous structure of said cathode or of said anode or both has a hexagonal arrangement of pores that are continuous through the thickness of the electrode.

8. (Previously Presented) An electrochemical cell according to claim 7, wherein said hexagonal arrangement of pores has a pore periodicity in the range of 5 to 9 nm.

9. (Currently Amended) An electrochemical cell according to claim 1, wherein said mesoporous structure of said cathode or of said anode or both is a film having a thickness in the range of about 0.5 to about 5 micrometers.

10. (Previously Presented) An electrochemical cell according to claim 1, wherein said anode comprises carbon or palladium.

11. (Previously Presented) An electrochemical cell according to claim 1, wherein said mesoporous structure of said cathode comprises nickel and an oxide, hydroxide or oxy-hydroxide of nickel, forming a surface layer over said nickel and extending over at least the pore surfaces, and wherein said anode has a mesoporous structure comprising carbon or palladium.

12. (Previously Presented) An electrochemical cell according to claim 3, wherein said nickel alloys are nickel alloys with a transition metal, nickel/cobalt alloys or iron/nickel alloys.

13. (Previously Presented) An electrochemical cell according to claim 4, wherein said pore diameter is in the range of about 2.0 to about 8.0 nm.

14. (Previously Presented) An electrochemical cell according to claim 5, wherein said pore number density is in the range of about $1x10^{12}$ to about $1x10^{13}$ pores per cm^2.

15. (Currently Amended) An electrochemical cell according to claim 6, wherein at least 85 % of the pores of said cathode or of said anode or both have pore diameters within 10% of the average pore diameter.

16. (Currently Amended) An electrochemical cell according to claim 6, wherein at least 85 % of the pores of said cathode or of said anode or both have pore diameters within 5% of the average pore diameter.

17. (Previously Presented) An electrochemical cell according to claim 11, wherein said oxide, hydroxide or oxy-hydroxide of nickel is NiO, $Ni(OH)_2$ or NiOOH.